

**BEST AVAILABLE COPY**

**Abstract of the Invention**

A correlating polarimeter is provided for correlating a received waveform of a wideband electromagnetic signal with a predetermined waveform. The correlating polarimeter may include a first antenna for receiving an electromagnetic signal and a modulator interconnected with the first antenna for modulating the electromagnetic signal whereby a modulated electromagnetic signal results which contains a different polarization state for each frequency of the electromagnetic signal with the amplitude of each frequency component of the modulated electromagnetic signal being a function of the particular polarization state of each frequency component of the electromagnetic signal. The correlating polarimeter may also include a linear polarizer that may be configured to pass a first predetermined polarization of the modulated electromagnetic signal through a first output thereof, a first receiver for receiving and demodulating the electromagnetic signal from the linear polarizer and outputting a received waveform and a correlator operatively interconnected with the first receiver and being configured to compare the received waveform to a predetermined waveform and output a correlation indicator.